

R E M A R K S

Applicant hereby affirms the election of Invention I (method, claims 1 - 10) in response to the requirement for restriction. Claims 11 - 16, drawn to the non-elected Invention II, have been cancelled without prejudice to their presentation in a divisional application. Other claims have been amended, and several claims have been cancelled as redundant in view of the amendments; also, several new claims have been added, all of which are directed to the elected method Invention. Since this Amendment does not increase either the total number of claims or the number of independent claims, no additional fee is necessary.

Claims 1 - 5, 7, 10 and 17 - 23 are in the application. No claim has been allowed, but original dependent claims 9 and 10 were indicated to be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

In light of these indications of allowable subject matter, original method claim 1 has been amended to incorporate the recitals of original claims 6, 8 and 9 which were dependent on claim 1, and which have accordingly now been cancelled as redundant.

Original claim 9 was dependent on claim 1 together with claims 2, 3, 6 and 8. Not all the limitations of claims 2 and 3 have been added to claim 1 by this Amendment; hence, amended claim 1 does not correspond identically in scope to original dependent claim 9 as indicated to be allowable in the Office Action. However, claim 1 as amended now recites the feature of controlling the temperature of the strip emerging from the accumulator rolls

"by sensing temperature conditions of the aluminum strip and communicating said sensed temperature conditions to a controller which acts to vary the distance between said spaced apart rolls." This represents a somewhat broadened definition of the features set forth in claims 2 and 3, in that it is not limited to the sensing locations specified in the latter claims.

New claims 17 - 22 respectively correspond to claims 1 - 5 and 7 as herein amended, except that they do not recite the speed of strip travel (as set forth in original claim 9) but instead recite the feature of temperature profile set forth in original claim 10. This group of claims is presented in accordance with applicant's understanding that either the feature recited in original claim 9 or the feature recited in original claim 10, if combined with the features of claims 1, 2, 3, 6 and 8, would constitute allowable subject matter. Again it is noted that in claim 17, not all the limitations of claims 2 and 3 are included, but a broadened definition of the temperature condition sensing feature (as in amended claim 1) is set forth.

New claim 23, dependent on claim 7 which is in turn dependent on claim 1, is directed to the specific feature described in the specification at p. 6, lines 19-20 (noting also p. 6, lines 27-30), i.e., the range of spacing of the rows of rolls.

With reference to the rejection of claim 1 under 35 U.S.C. §103(a) as unpatentable over JP '167 in view of Sellitto et al., it may initially be noted that in JP '127, cooling is done by providing cooling rolls. The amount of cooling is then varied by controlling the contact arc length on the cooling rolls. Little or no cooling takes place in the non-contact zones.

The present invention thus represents an alternative solution to the technical problem of cooling a metal strip in a continuous heat treatment line. According to the present invention it has been found that adequate cooling can be achieved by a somewhat simpler technique of relying upon ambient cooling air while controlling the distance between rolls and the speed of the strip.

In the Office Action, the Examiner has held (p. 5, "allowable subject matter") that

"The prior art does not teach or suggest a process of controlled cooling an aluminum alloy strip (substantially as set forth in independent claim 1 together with claims 2, 3, 6 and 8), wherein the strip travels at the instant speed (dependent claim 9)."

Claim 1 as herein amended sets forth the limitations recited in claims 6, 8 and 9, and differs in scope from original dependent claim 9 only in that, in place of the specific locations of temperature sensing set forth in claims 2 and 3, amended claim 1 recites more broadly "sensing temperature conditions of the aluminum strip and communicating said sensed temperature conditions to a controller."

Notwithstanding this somewhat broader recital of the strip temperature conditions sensing step, it is submitted that amended claim 1 distinguishes patentably over the applied references (JP '127 and Sellitto et al., considered together), in the same manner as original dependent claim 9. Neither reference teaches, and no combination of them would make obvious, using a strip speed of about 6-120 m/min in performing the combination of steps now

defined in amended claim 1, regardless of the location at which strip temperature conditions are sensed.

It is not necessary to monitor temperature conditions both upstream of the accumulator rolls and immediately before rewinding. One or the other will work. Thus, claim 3, like original claim 2, has now been made directly dependent on claim 1. Claims 2 and 3 have also been amended to delete recitals made redundant by the amendment of claim 1.

Claims 2, 3, 4, 5, 7, 10 and 23 are submitted to be allowable by virtue of their dependence on allowable amended claim 1. It will be noted that claim 10 is limited to the combination of the strip speed range of claim 9 (now recited in claim 1) and the temperature profile feature of claim 10. The range of spacing (about 2-18 meters) for the rows of rolls, now set forth in new claim 23, is believed to present an additional patentable distinction over the applied references, which appear to vary the roll spacing only sufficiently to vary the length of the strip-roll contact arc.

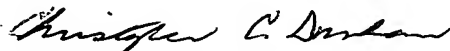
New independent claim 17, as stated, differs from claim 1 as herein amended only in (1) omitting the recital of strip speed range now recited in amended claim 1 and (2) reciting the temperature profile feature set forth in claim 10. Thus, claim 17 incorporates the limitations recited in original claims 6, 8 and 10, but not the limitations recited in claim 9, and instead of the limitations recited in claims 2 and 3, it sets forth the broader "sensing temperature conditions" recital of amended claim 1.

It is submitted that claim 17 distinguishes patentably over the applied references in reciting the combination of the tem-

perature profile limitation of claim 10 with the features recited in original claims 1, 6 and 8 and the aforementioned "sensing temperature conditions" recited. Neither reference discloses, and no combination of them would suggest, the use of the temperature profile feature of claim 10 in such a combination of steps and process conditions. Claims 18-22 are submitted to be allowable by virtue of their dependence on claim 17.


For the foregoing reasons, it is believed that this application is now in condition for allowance. Favorable action thereon is accordingly courteously requested.

Respectfully,



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I hereby certify that this paper is being deposited this date with the U.S. Postal Service as first class mail addressed to the Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.


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